

Research could help solve hypoglycaemia unawareness and discover how the brain deals with frequent hypos

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Recognising hypos: Dr Craig Beall's research is funded by Diabetes UK

An Exeter researcher is looking into the effects of low blood glucose and how it can affect people with diabetes.

Balancing certain [diabetes](#) medication such as insulin injections with food and activity are key to successfully managing diabetes on a day to day basis. When that balance isn't right either [blood glucose](#) rises too high and hyperglycaemia (a hyper) occurs or blood glucose drops too low and hypoglycaemia (a hypo) occurs. Hypo symptoms vary from person to person and can range from mild to severe. They can come on quickly and can leave people feeling tired, shaky, sweaty, hungry, tearful or moody or with blurred vision, headaches or a lack of concentration.

Hypos can affect both people with Type 1 diabetes and people with Type 2 diabetes who treat their diabetes with certain tablets and/ or insulin.

Hypos can be a major concern for some people with diabetes (particularly if they treat their diabetes with insulin or some tablets that increase the chance of having a hypo) and their carers. Over time this can lead to 'hypoglycaemia unawareness', where a person may not have hypo symptoms and therefore might be unable to tell when they are having a hypo. In the long term, this can leave individuals becoming more at risk of developing severe hypos, which requires help from another person to recover from.

Dr Craig Beall at the University of Exeter is studying hypos and the effect they have on the brain. His work aims to understand what cells within the brain are responsible for sensing hypos.

Dr Craig Beall says: "No matter how much people know about diabetes or how careful they are, if diabetes is treated with certain medication such as insulin, you are likely to experience some hypos. Some people really struggle with hypos and when they happen during the night, they can be quite disruptive to one's quality of life. We are trying to understand how impaired hypo awareness arises and if we can better understand this, perhaps we can design treatments to prevent hypos from happening. We are constantly learning new things about how the brain deals with frequent hypos but we're still some way off a treatment that would prevent hypos or bring back someone's hypo awareness, which is why the funding from Diabetes UK is so essential".

Martin Ellis and his daughter Aimee, from Plymouth have experience of hypos. Martin is the chair of a new Diabetes UK local group in Plymouth, the Sugar Zappers, and is running a carb counting event on 29 October to help improve blood glucose control and reduce the risk of hypos.

Martin said: "When Aimee experiences a hypo you can definitely see a change in her appearance and behaviour, although she is not always aware herself. Aimee's blood sugar control is very good so sometimes it can be difficult for her to feel the symptoms of a hypo."

"Aimee is a very sporty 13 year old who plays netball at a high level, so she has had to develop a good routine to prevent and deal with hypos. One of the most recent and biggest changes for Aimee has been using an insulin pump to deliver her life saving insulin. It allows her to be more flexible with her eating which helps her with all her sports. It has also meant that she has had to learn how to count the carbohydrates in her meals which has led to even better control."

"This means she always tests her blood glucose levels regularly and she carries a box of snacks with her at all times to help prevent or treat any low blood sugars. Aimee has made sure that all her friends are aware that she has diabetes so they can help if she has a hypo and she has never let her diabetes stop her from doing anything in her daily life."

Craig's research at the University of Exeter has been funded by Diabetes UK - just one of over 100 studies that the charity is supporting all over the country with help from its dedicated volunteers. Each is helping to nurture a project, individual or idea that will help transform the treatment and prevention of all forms of diabetes, and lead us to a cure. Diabetes UK relies on public support to fund ground breaking work like Dr Beall's study. Last year, the charity spent £7 million on new and ongoing research - but still had to turn away 1 in 3 promising studies due to a lack of research funding.

Dr Richard Elliott, from the Diabetes UK Research Team said, "We're very pleased to be helping Craig and many other researchers across the UK to achieve their goals, which will help make life better for everyone living with diabetes. We're indebted to our supporters for their help, but

as a nation we must do more. We need to see the same commitment to tackling diabetes through research as we have rightly seen for other health conditions."

Claire Gordon, Regional Manager for Diabetes UK South West says:
"People with diabetes can enjoy every opportunity and nothing should hold them back - research like Craig's study will provide insight to how live life to the full and reduce risk of hypos."

"Our volunteer groups, such as the Plymouth Sugar Zappers are great fundraisers and provide support to local people. In the south west last year we raised over £187,000 which goes towards research and supporting people with diabetes."

"It's really important that people talk about their hypos with their healthcare team and learn to manage their condition. Aimee, supported by her family, manages her blood glucose and this allows her to live life to the full. I would encourage people with diabetes who experience hypos to learn more either by attending the Sugar Zapper's carb counting event on 29 October or they can talk to their Diabetes Nurse for a referral to a DAFNE course and for more information on how to manage their condition."

Provided by University of Exeter

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